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Coral reefs of the Leeward Antilles (SouthernCaribbean) steered into unchartered waters byhuman impacts

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Over the past 50 years, coral reefs have experienced a global decline due to the combined effects of human activities and climate change. Historical data on reef communities prior to significant human impacts in tropical regions is scarce, with only a few locations benefiting from long-term monitoring efforts. Pleistocene coral reefs, where preserved, provide valuable baselines for understanding the evolution of modern reef ecosystems. In this study, we compare the evolution of coral reef communities on the island of Curaçao (Leeward Antilles, Caribbean) between 1973 and 2023 with the dynamics of reef communities in Last Interglacial fossil reefs on the islands of Aruba, Curaçao, and Bonaire. Our findings reveal that modern reefs in the ABC islands, under increasing pressures from overpopulation, overfishing, coastal pollution, and invasive species, are being driven into uncharted territory, exhibiting conditions unmatched even by their fossil counterparts from the Last Interglacial period.